TWO *PARMELIAE* (LICHENS) NEW TO INDIA

The genus *Parmelia* has been studied in detail by Awasthi (1976) who recorded 102 species. Patwardhan and Praphu (1977a, 1977b, 1977c) added eleven species and enhanced the total number to 113.

In the course of investigations of a lichen collection from Manipur two species of *Parmelia viz. P. brevirhiza* and *P. goebelii*, new to Indian lichen flora have been discovered that are dealt below.

The chemical aspect of these species was studied by thin layer chromatography as followed by Culberson (1972).

Parmelia brevirhiza Kurokawa in Hale and Kurokawa, Contrib. U. S. Natl. Herb. 36 (4): 166. 1964—*Hypotrachyna brevirhiza* (Kurok.) Hale, Smith. Contrib. Bot. No. 25: 26. 1975.

Thallus saxicolous, whitish grey; lobes sublinear to subirregular, 2-3 mm wide, ciliate; upper side plane, pruinose towards tips, sorediate, soredia capitate, diffuse, usually occurring at tips of lobes or some times in laminal region; lower side black, densely rhizinate, rhizinae dichotomously branched. Apothecia lacking.

Chemistry: Cortex K+yellow; medulla K+yellow-red, C—, KC—, P+orange-red; atranorine, salazinic acid, norstictic acid and unidentified triterpenoid present.

Parmelia brevirhiza is widely distributed in South America, where it occurs in Chile (Type locality), Argentina, Venezuela and Ecuador. Outside S. America, it is known only from Africa and Java. The Present finding of the taxon from Indian region is of great phytogeographical interest. The characteristic features of the species are the absence of cilia and presence of coarse, diffuse soralia, branched rhizinae and salazinic acid in medulla.

Specimen examined: Manipur-Ukhrul, Siroi hills, Singh 54850 (CAL)

Parmelia goebelii Zenker in Goebel and Kunze, P. 134. 1827. *Bulbothrix geobelii* (Zenk.) Hale, Smith. Contrib. Bot. No. 32: 14. 1976.

Thallus corticolous, whitish mineral grey; lobes sublinear, 1-1.5 mm wide; margins dissected, densely bulbate ciliate, cilia apically branched; upper side maculate and isidiate; lower side brown, rhizinate, rhizinae moderately branched. Apothecia lacking.

Chemistry: Cortex K+yellow; medulla K—, C+red, KC+red, P—; atranorine and gyrophoric acid present.

The species distributed in Asia, America and Africa is characterized by the presence of bulbate cilia, isidia and gyrophoric acid. Six other species *viz. Parmelia bulbochaeta* Hale, *P. isidiza* Nyl., *P. meizospora* Nyl., *P. sensibilis* Stein & Zahlbr., *P. setschwanensis* Zahlbr. and *P. tabacina* Mont. et Bosch from India are also known to have bulbate cilia. Except *P. bulbochaeta*, the remaining five species possess salazinic acid and thus can be easily distinguished from *P. geobelii*. *P. bulbochaeta* lacks both salazinic acid and gyrophoric acid and possesses only atranorin.

Specimen examined: Manipur-Litan, Mapiths Hill range peak, Singh 54963 (CAL).

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